ABSTRACT

An improved data embedding and watermarking method and apparatus for images is described that allows for multiple levels of data to be encoded and retrieved, increasing image data content and information in a manner that cannot be lost or separated from the image. The various embodiments include images with two or more data fields/layers watermarked into them or within one or more of their sub-images/objects and methods and apparatus for encoding and decoding the multiple data fields utilizing multiple layer watermarking. Additionally, embodiments of the present invention associate the multiple layers of data directly with an image or sub-image allowing the data to be specific to the image/sub-image and contextual, reducing the potential for reader misunderstanding and improving communication.